

Application No.: 10/569,222  
Response dated: July 16, 2009  
Response to Office Action mailed April 16, 2009

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**Amendments to the Claims:**

**Claims 1- 14 (Cancelled)**

15) (Previously Presented) A halogen-free fire retardant coating composition comprising:

- i) film forming polymer
- ii) inorganic fire retardant material

characterised in that the fire retardant material comprises a combination of fire retardant filler particles and a metal stannate, a metal hydroxy stannate or a combination thereof, wherein the overall PVC of the composition is from 75 to 97 % and the composition has a medium shear viscosity measured at 25°C of from 0.6 Pa.s to 6.0 Pa.s.

16) (Previously Presented) A fire retardant coating composition according to Claim 15 characterised in that the fire retardant material comprises fire retardant filler particles coated with the metal stannate, or the metal hydroxy stannate, or a combination thereof.

17) (Previously Presented) A fire retardant coating composition according to Claim 15 characterised in that the inorganic fire retardant material is able to give off water, carbon dioxide or a combination thereof when in the form of a dried coating and exposed to the elevated temperatures found in or close to a flame in a fire.

18) (Previously Presented) A fire retardant coating composition according to Claim 16 characterised in that the inorganic fire retardant material is able to give off water, or carbon dioxide, or combination thereof when in the form of a dried coating and exposed to the elevated temperatures found in or close to a flame in a fire.

19) (Previously Presented) A fire retardant coating composition according to Claim 15 characterised in that the fire retardant filler is selected from the group consisting of huntite, hydromagnesite, aluminium trihydroxide and magnesium hydroxide.

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- 20) (Previously Presented) A fire retardant coating composition according to Claim 15 characterised in that the metal hydroxy stannate is zinc hydroxy stannate.
- 21) (Previously Presented) A fire retardant coating composition according to Claim 15 characterised in that the fire retardant material comprises from 100 to 2000% by weight of the film forming polymer.
- 22) (Previously Presented) A fire retardant coating composition according to Claim 15 characterised in that the composition also contains at least one component selected from the group consisting of pigments, rheological modifiers, flow aids, dispersants, extenders, anti-foams, crosslinking agents and biocides.
- 23) (Cancelled)
- 24) (Previously Presented) A fire retardant coating composition according to Claim 15 characterised in that the composition is waterborne.
- 25) (Previously Presented) A fire retardant coating composition according to Claim 15 characterised in that the particles in the composition are substantially spherical particles up to 1000 microns in diameter.
- 26) (Previously Presented) A fire retardant coating composition according to Claim 15 characterised as present on a substrate.
- 27) (Previously Presented) A fire retardant coating composition according to Claim 15 characterised as present as a first dried layer of a fire retardant coating system having a second dried layer over the first dried layer where the second dried layer is of a different composition to the first.
- 28) (Previously Presented) A fire retardant coating composition according to Claim 15

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characterised as having at least two of:

- i) a fire retardant filler selected from the group consisting of huntite, hydromagnesite, aluminium trihydroxide and magnesium hydroxide;
- ii) a metal hydroxy stannate that is zinc hydroxy stannate;
- iii) a fire retardant material comprising from 100 to 2000% by weight of the film forming polymer;
- iv) at least one component selected from the group consisting of pigments, rheological modifiers, flow aids, dispersants, extenders, anti-foams, crosslinking agents and biocides;
- v) a medium shear viscosity measured at 25°C from 0.6 pa.s to 6.0 Pa.s;
- vi) a composition that is waterborne; or
- vi) the particles present a substantially spherical particles up to 1000 microns in diameter.

29) (Previously Presented) A fire retardant coating composition according to Claim 28 present on a substrate.

30) (Previously Presented) A fire retardant coating composition according to Claim 29 characterised in that the fire retardant coating composition present on the substrate is as a first dried layer of a fire retardant coating system having a second dried layer over the first dried layer where the second dried layer is of a different composition to the first dried layer.

31) (Previously Presented) A fire retardant coating composition according to Claim 15 characterised in that the fire retardant coating composition is prepared by:

- a) forming a uniform dispersion by combining water and a clay thickener;
- b) adding to the dispersion:
  - i) an antifoam;
  - ii) a biocide;
  - iii) a first dispersant;
  - iv) fire retardant material selected from 1) aluminium trihydroxide coated

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- with zinc hydroxy stannate added over a period of about 3 minutes and 2) aluminium trihydroxide and zinc hydroxy stannate)
- v) a thickener; and
  - vi) water; to form a mixture; and
- c) dispersing the mixture to form the millbase;
  - d) adding to the millbase:
    - i) fly ash having hollow alumina-silicate spheres;
    - ii) acrylic polymer latex made by an emulsion polymerization process having a monomer composition of methyl methacrylate/2-ethyl hexyl acrylate/acrylic acid of weight ratio 50.5/48.5/1.0, respectively, with a calculated Tg of 6.4°C. and solids content of 50% by weight;
    - iii) a thickener different from the first thickener,
    - iv) glass fibers or calcium carbonate; and
    - v) a third thickener to form the coating composition.
- 32) (Previously Presented) A method of forming a coated substrate comprising:
- a) providing a substrate
  - b) applying onto at least a portion of the substrate at least one layer of a coating composition comprising:
    - a halogen-free fire retardant coating composition comprised of:
      - i) film forming polymer
      - ii) inorganic fire retardant materialcharacterised in that the fire retardant material comprises a combination of fire retardant filler particles and a metal stannate, a metal hydroxy stannate or a combination thereof, wherein the overall PVC of the composition is from 75 to 97 %; and
  - c) allowing the least one layer to dry.